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TECHNICAL REPORT OF THE
ECSU HOME - INSTITUTION SUPPORT PROGRAM
1993 FOURTH QUARTER

SUBMITTED TO
THE OFFICE OF NAVAL RESEARCH
BY
ELIZABETH CITY STATE UNIVERSITY

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Quarterly Report

ONR-ECSU Home Institution Support Program

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Graduate School Admission

Four of our students, Stephanie Vaughan, Renee Basnight, Willie Basnight and Michelle Brown-Emmanuel have been admitted into the computer science masters degree program at Hampton University. All received fellowships in the amount of \$9000.00. These students will join Deborah Jones who began graduate school at Hampton Univ. in September of 1993. Willie Basnight has not yet decided to accept the fellowship offer. All others are now registered and have begun their classes. Willie has until Friday 1/18/94 to decide.

This semester, Cathy Thomas, one of our 1992 graduates will complete her masters degree in computer science at Ohio State University. She has indicated that she plans to continue on into the Ph.D. program.

Student Travel

Seven student researchers have had their abstracts accepted for presentation at the NAAAS conference to be held at Virginia State University in February. The National Association of African Studies. When our students presented at the 1993 NAAAS conference, it was the first time students had been accepted. The conference chairman wrote to me afterwards on how favorably impressed he was with the caliber of their presentations. A copy of his letter is attached.

Students have also submitted abstracts to the Undergraduate Research Conference to be held at Western Michigan University in April. There has been no word yet as to whether or not they have been accepted.

In preparation for their presentations, students have met one Wednesday night each month to prepare overhead transparencies and poster presentations. They have also used that time to prepare their abstracts in the format required for submission. The student researchers were assisted in their efforts by several sophomore and freshman students who

are not yet a part of our program but who have been referred to me by other members of the faculty. We have chipped in to buy pizza for these research meetings. Since several of the student researchers have keys to the laboratory, they often remained late into the night to continue their preparation or to work jointly on some applications or classroom assignments. These meetings have proven to be a very effective mentoring opportunity.

Four ONR students will be attending the Graduate School Forum at Georgia Tech. next week. Tammy Askew(Mathematics) and Karen Felton(Chemistry), Alisha Hart (Computer Science) and Belinda Banks(Computer Science) are all seniors. For these students we are seeking graduate school admission and financial assistance. (See attached letter from Georgia Tech.)

Visiting Lecture Series

Two Lecturers visited our campus during Fall '93 semester. Mr. Robert Norris spoke on virtual reality. Mr. Eric Harris spoke on Software Testing and Internship opportunities. Mr. Melvin Blackwell will discuss The Client Server Platform during his visit on Jan. 20, 1994. The February lecture will be devoted to Minorities in Science. The March Lecture will be devoted to Women in Science. (See attached Lecture announcements)

Proposals Submitted

I have submitted a proposal to the ONR Science, Engineering and Mathematics Education Program. The title of our proposal is "Nurturing ECSU Research Talent in Parallel Processing and Computer Visualization. The proposal deadline was Jan. 6, 1994. A copy of the abstract is attached to this report. A proposal control number has not yet been assigned.

I also submitted a proposal to the ASSERT program. The request was to support four undergraduate and four precollege students in a parallel processing and computer visualization investigations. A copy of the abstract is also attached to this report. The proposal control number is 94450-0122.

NURTURING ECSU RESEARCH TALENT (NERT)
in
Parallel Processing and Computer Visualization

Starting Date: June 1, 1994

Abstract

This program, entitled "Nurturing ECSU Research Talent in Parallel Processing and Computer Visualization" focuses on undergraduate education and undergraduate research experiences in computer science. Nurturing these young researchers will be our primary concern. Highest priority will be given to providing them with the guidance and skills to insure their entrance and success in graduate school. Further, each student in our program will learn the fundamentals of scientific research as they conduct investigations in parallel processing and computer visualization. Student development activities will include the following: a) Recruitment of 20 high ability minority students b) Providing a summer program for recruited students; c) Providing research experiences in computer visualization and parallel processing; d) Providing a mentor, graduate school counseling and GRE preparation; e) Providing financial support for students in the form of research scholarships; and f) Providing funds for student travel.

We are also proposing to strengthen the infrastructure of the Mathematics and Computer Science Department of ECSU. Activities proposed are: a) Enhancement of current computer graphics and operating systems courses; b) Development of two new courses in parallel processing and computer visualization (PPCV); c) Acquisition of computer equipment appropriate to support of PPCV research; d) Establishing a visiting lecture series in computer science; and e) Hiring a UNIX network manager. This project will build on the lessons learned and resources acquired during the 1991-93 ONR pilot program at ECSU.

To accomplish the goals, we have partnered with several other organizations and institutions: Colgate University, University of Georgia, North Carolina Supercomputing Center, Rochester Institute of Technology and Alcoa Aluminum Company of America. These partners have agreed to participate in the visiting lecture series, to support our computer visualization and our parallel processing research activities. To reemphasize the commitment of ECSU to this project, we are requesting only a 20% indirect cost rather than the 63% maximum allowed. ECSU is a small school that makes a big effort to nurture their students.

ONR ASSERT Award for Student Researchers

ABSTRACT:

The current ONR program supports twelve student researchers. These students are mathematics, computer science, physics and chemistry majors. Over the last three years these students have received training in conducting scientific investigations and have been invited to present their research findings at several national conferences including the National Energy Research Conference in Puerto Rico and the Undergraduate Student Research Forum in Atlanta, GA.

This program has had other very impressive results. ONR students only made up 17% of the 1991-93 CCMP graduating students, however, they comprised **60% of those who went on to graduate school**. This is a program which ONR proudly counts as part of its Minority Research/Education Initiative.

This request for AASERT funds will annually support four minority undergraduates who are not now a part of our program. It will also allow us to include four minority precollege students in our summer research training. All students hired under this research project will be actively involved in **computer science** research projects. The subareas of their research investigations are **parallel processing** and **computer visualization**.

Dr. Linda Hayden, **a minority female**, will serve as Principal Investigator of this project. She is a tenured full professor of computer science with 20 years of college experience teaching and nurturing student researchers. She has taught for a total of eight years at ECSU. Elizabeth City State University(ECSU), a Historically Black College, is a growing coeducational undergraduate, public institution of higher learning...one of the sixteen constituent institutions of The University of North Carolina.

~~National Association for African American Studies~~
School of Humanities and Social Sciences
Virginia State University
Box 9403
Petersburg, VA 23806
(804) 524-5068

Program Committee

March 1, 1993

Dr. Linda Hayden
Computer Science
Elizabeth City State University
Elizabeth City, NC 27909

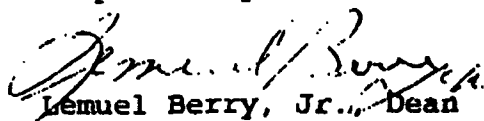
Dear Dr. Hayden:

Please accept my congratulations for the outstanding research and formal presentation which your students made at the National Association of African American Studies conference. I must say that your students were impressive and conducted themselves in a very professional manner.

Hopefully, you will be in a position to bring students to the 1994 convention. I am sure that they would cherish the experience.

Feel free to contact me if I may be of assistance.

Respectfully,


Lemuel Berry, Jr., Dean

LB Jr/cbh

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Computer Science Seminar Series

Mr. Melvin Blackwell

Owner of Sosoftware Consulting Company

The Client Server Model

2:15 - 3:30 am

**Thursday, Jan. 20 1994
115 Lester Hall**

Computer Science Seminar Series

Mr. Eric Harris

**Information Systems Management Specialist
Langley Air Force Base**

Software Testing

Internships, Co-ops and Job Opportunities

10:00 - 11:00 am

**Thursday, Nov. 11, 1993
115 Lester Hall**

Computer Science Seminar Series

Mr. Robert Norris

Engineering Instructor
University of the District of Columbia

Virtual Reality

2:15 - 3:30 am

Thursday, Oct. 20 1993
115 Lester Hall

KING WEE

FOCUS '94

January 14-17, 1994

**"Education without
social action is a
one-sided value
because it has no
true power
potential. Social
action without
education is
a weak expression of
pure energy."**



THE KING CENTER

November 26, 1993

Dear Prospective Graduate School Student:

I want to offer my warmest greetings and support to all of you as we join together in a nationwide celebration of the 9th Martin Luther King, Jr. holiday.

As founding president and chief executive officer of the Martin Luther King, Jr. Center for Nonviolent Social Change, I am encouraged that the Georgia Institute of Technology Focus '94 program is commemorating our newest national holiday in the spirit of nonviolence. Your commitment to observe the holiday in a constructive and uplifting fashion will help bring us one step closer to making my husband's dream a reality.

Our theme for the 1994 observance, "Nonviolence: Empowering To Make A Difference" reflects our conviction that we must earnestly study Dr. King's teachings not only as a method for social struggle, but as an integral part of every aspect of our lives so that we may teach nonviolence by our example.

In commemorating Martin Luther King, Jr.'s life and work with a federal holiday, we also celebrate the vibrant spirit of justice, equality, and brotherhood for which this nation must forever stand. Dr. King believed that education is one of the most effective tools for empowerment, and I encourage you to further your education so that you can help fulfill his dream.

We appreciate your efforts to fulfill the Dream, and we wish you the best for a joyous and meaningful Martin Luther King, Jr. birthday celebration.

Sincerely,

Coretta Scott King
Founding President and
Chief Executive Officer

**A Reflection
of the Past**

**A Perception
of the
Present**

**A Vision for
the Future**

Foreword

The Martin Luther King, Jr., Center for Nonviolent Social Change and the Martin Luther King Federal Holiday Commission annually sponsors a celebration to honor Dr. Martin Luther King, Jr. The celebration, which is held in January, offers nine days of activities and includes participants from around the world.

This attraction and an emerging partnership between the King Center and the Georgia Institute of Technology led to the development of a unique program, Focus '94.

Focus '94 is designed to give prospective African American graduate students an opportunity to visit Georgia Tech and Atlanta, receive an overview of the graduate degree programs, and participate in the celebration. We hope this visit will encourage African American students to pursue advanced degrees in engineering and other technical disciplines. It will also provide financial alternatives and assist in the overall decision-making process when selecting a graduate school and a suitable location.

Georgia Tech: Preparing the Leaders of Tomorrow

The Georgia Institute of Technology first opened its doors in 1885. It was the first technological university of its kind in the South and joined the ranks of a small but prestigious group of Atlanta universities founded in the 1800s. The group included Emory University and three historical black colleges—Morris Brown College, Morehouse College, and Spelman College. Today, although more than 14 public and private colleges and universities can be found in the Atlanta area, this original group still remains among the most distinguished institutions in the nation.

Georgia Tech, with more than a century of excellence in education now behind it, has entered a new era and is preparing for the 21st Century. New programs and degrees are now offered in areas such as technical communications, discrete mathematics, management of technology, and public policy. Tech's goal in the developing of these new programs is to add choices and options for the students who seek the superb technological education that only Georgia Tech can provide. Through the Colleges of Engineering,

Sciences, Architecture, Computing, and the Ivan Allen College of Management, Policy, and International Affairs, Tech offers curricula leading to degrees in 32 undergraduate majors, 37 master's programs, and 27 doctoral programs, as well as preparatory programs for law, veterinary, and medical schools.

In the 21st Century who is educated will be as important as how they are educated. African Americans are critically underrepresented in America's graduate and professional schools. Visionary planners in education, industry, government, and the military are concerned that unless partnerships and networks are created to improve minority educational opportunities, America's quality of life will be jeopardized.

According to statistics, the number of African Americans earning various degrees has steadily declined. For example, a decline of 26 percent in earned doctorates occurred between 1976 and 1986. While African-American males earned 684 doctorates in 1976, only 321 were earned a decade later. The problem becomes exacerbated by the imbalance in disciplines. While improvements in all areas are necessary, dramatic increases in the scientific and technological disciplines are

imperative. The nation's future depends on African American progress in advanced studies and professional schools. Georgia Tech has realized this dilemma and has begun to develop and implement programs to address this concern.

Progress has been noted and the most recent numbers indicate that Georgia Tech ranks first in the graduation rate of minority engineers and fifth in the graduation rate of African American engineers. There is much to be done to increase the African American population of undergraduate and graduate students as well as the representation of African American professors. Tech President John P. Crecine has recognized these two vital areas and addressed them through established goals to be realized by 1996.

The Georgia Institute of Technology eagerly anticipates the opportunities of the future for all members of the campus community. Through its dedication to intellectual excellence, the Institute will continue to provide quality education, service, and research for the benefit of its students and the larger community.

Under The Tower

Today, Georgia Tech is made up of over 12,000 students from every state and over 900 international students from over 80 countries. The campus covers nearly 330 acres at the edge of downtown Atlanta. Students pursue degrees in the Colleges of Engineering, Architecture, Computing, Sciences, and the Ivan Allen College of Management, Policy, and International Affairs. The quality of the Georgia Tech student is unusually high. Tech enrolls the highest percentage of National Merit Scholars than any other publicly supported school in the country and the third highest percentage of National Achievement Scholars.

Tech's faculty consists of 721 full-time instructors, over 90 percent of whom hold doctoral degrees. Tech ranks second in the U.S. in total number of engineering degrees granted to minority students, and second in the number of master's degrees in engineering, computer



science, and mathematics conferred to African Americans, according to *Black Issues in Higher Education*. More GEM Fellows attend Georgia Tech than any other institution.

With an annual research budget exceeding \$120 million, Georgia Tech is the South's largest industrial and engineering research agency, conducting both pure and applied research through the academic colleges and the Georgia Tech Research Institute. More than 40 interdisciplinary research centers are located on campus to explore areas such as nuclear medicine, environmental resources, biotechnology, microelectronics, polymers, materials handling, international strategy and policy, health systems, fusion, and construction just to name a few.

Graduate Degree Offerings

Master's Degrees

Aerospace Engineering
Applied Mathematics
Applied Physics
Architecture
Atmospheric Sciences
Biology (undesignated)
Ceramic Engineering
Chemical Engineering
Chemistry
City Planning
Civil Engineering
Computer Science
Earth Sciences
Economics (undesignated)
Electrical Engineering
Engineering Science and Mechanics
Environmental Engineering

Geophysical Sciences
Health Physics
Health Systems
History of Technology
Industrial Engineering
Management
Mechanical Engineering
Metallurgical Engineering
Nuclear Engineering
Operations Research
Physics
Polymers
Psychology
Public Policy
Statistics
Technology and Science Policy
Textile Chemistry
Textile Engineering
Textiles

Doctoral Degrees

Aerospace Engineering
Algorithms, Combinatorics, and Optimization
Applied Biology
Architecture
Atmospheric Sciences
Biochemistry
Ceramic Engineering
Chemical Engineering
Chemistry
Civil Engineering
Computer Science
Earth and Atmospheric Sciences
Economics
Electrical Engineering
Engineering Science and Mechanics
Environmental Engineering
Geophysical Sciences
History of Technology
Health Physics
Industrial Engineering
Management
Mathematics
Mechanical Engineering
Metallurgical Engineering
Nuclear Engineering
Operations Research
Physics
Polymers
Psychology
Textile Engineering



November 26, 1993

Dear Prospective Graduate School Student:

- This coming year we celebrate the 65th birthday anniversary of the Reverend Dr. Martin Luther King, Jr.

Through his faith in the goodness of humankind and in the power of ideas, Dr. King changed our nation. Today, Dr. King's legacy remains a great source of strength as we strive to fulfill his vision of a world where, "People are judged not by the color of their skin but by the content of their character."

In my inaugural address on April 7, 1988, I stated that if the society in which we live is to be significantly better in the 21st Century, one major reason will be the full participation in all segments by all segments of society; African Americans, Hispanic Americans, and women in particular. I also pledged that before my stewardship of Georgia Tech is finished, it will be recognized as a major source of women and African American Ph.D.s in engineering, science, and the other technical disciplines. It will also be a place where the faculty and student communities are hospitable to all, regardless of age, gender, or race.

Please accept my personal invitation to this program which will give you an insight into the past, the present, and the future. It will allow you to experience first hand a partnership that fosters Dr. King's teaching and substantiates my pledge.

Regards,

A handwritten signature in black ink, appearing to read "John P. Crecine".

John P. Crecine
President

Georgia Institute of Technology